Working with Log

Leading on from color spaces I mentioned before, when we had our little video about dynamic range that there is that a lot of video cameras will shoot in what is called a log pitch profile, just as color spaces can, you know define the spectrum of colors that can be captured and displayed, you know, on a camera and then are displayed on a device. They also have different gamma curves, gamma curves are a little bit complicated, so I'm not going to go into a ridiculous amount of detail with them, I feel like it would be very overwhelming at the stage of the program. So all I will say about them is that they are a manner of storing color and luminance values. And they will determine how an image looks in terms of contrast, and saturation, you know, combined with all of the other digital imaging principles and factors that we are going to be talking about now. So gamma curves will also have a great deal of impact on how your video footage responds and how responsive it is how much it cooperates with you when you are trying to color grade it. The other big thing that you kind of need to know about gamma curves is that they can either be linear or nonlinear. And a video clip with a non linear gamma curve will have more information retained in its shadows and highlights. That's that dynamic range thing that we were talking about a little bit earlier. videos that have a strongly non linear gamma curve generally have been recorded in what we call a logarithmic or log profile. You know, this is what we mean when we talk about things like c log cannons log, when we talk about s log Sony's log, I think Nikons is n log Fuji has f log, etc. These are all logarithmic profiles that have varying degrees of non linear gamma curves. And they allow you when you use those profiles, as I'm doing now, in fact, on the C 200, as I'm recording myself, when you shoot in a logarithmic profile, it allows you to retain more information in the shadows and the highlights because you give yourself more dynamic range effectively. This is a not an exact representation, but it gives you a nice idea of the difference between a linear gamma curve and a logarithmic gamma curve. So if we look at the log curve over here on the right, we can see that the shadows left of the image over here have been lifted up to preserve detail. You know, if we think of this as pitch black here at the bottom, and this top part, we think of that as pure whites, you can see that the shadowed areas have been raised in order to preserve and retain some detail there. While the highlights right of the image over here have been pushed down in order to preserve detail in them as well. This is what I mean, when I talk about things having a wider dynamic range. This is also what I meant you would remember from the dynamic range video that I spoke about how having more dynamic range gives you more room literally room for pushing your exposure and your color in different directions to give it more contrast or less contrast. That is exactly what I mean here you see there was much more space from here to the top here and from like here to the bottom than there is in the example of the linear curve over here which means you have physically more room to work with when you are manipulating your color and luminance information. This relates back to color spaces as I mentioned, because a lot of cameras shoot in rec seven or nine right the color space that we spoke about before and each color space has a gamma curve attached to it. Now, while rec seven or nine gamma curve is not completely linear, as in this instance over here in this example that we have on screen, it is however much more linear than a logarithmic curve like this one and therefore your dynamic range will be particularly reduced.